Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

the dull ones will be able to radiate a little light of their own if opportunity is given them to do something more than repeat the feeble beams of a text-book. And this is the greatly needed thing; this is the essential thing,—that students should think for themselves. Original thought is the spirit of the present, the genius of the future. A rational course of study is the alembic which can precipitate such thought from a solution of confused and half-formed notions. Science itself is to be defined as that mass of facts within experience by which we criticize our primitive ideas. Therefore, everything should be bent to bringing forth true thought from the pupil; otherwise he cannot arrive at intellectual manhood.—CONWAY MCMILLAN, *in Education.*

ZOOLOGY.

The Anatomy of Phagocata.—Woodworth's paper[1] on the structure of this Triclad is a valuable contribution to our knowledge of the Turbellaria. This worm, described by Leidy forty years ago, has been neglected until now. Woodworth has investigated the anatomy in a thorough manner, and besides confirming Leidy's account of the many pharynges—doubted by several helminthologists—has investigated all parts of the animal. Phagocata possesses a main pharynx which opens at the junction of the three branches of the alimentary tract, and, besides, many others which open into the posterior trunks of the intestine. These are arranged without apparent order, except that the further they are from the median pharynx the smaller they become. The development of the rhabdites is traced. They arise in gland cells lying in the mesenchyme, and pass up into the hypodermis, where they have an intercellular position, by means of tubular projections of the mother cells. Woodworth thinks the function of the rhabdites to be to aid in the capture of prey, since by their slow solution in water they form a thick mucus. The body of the animal is usually darkly pigmented, the pigment being scattered granules intercellular in position. In its nervous system Phagocata stands intermediate between Gunda and Rhynchodesmus. There is a superficial and a deeper portion, the two being indirectly connected by means of a marginal nerve. The vasa efferentia are products of the testes; and the growth of the yolk glands shows that these and the ovaria are formed by differentiation from a common anlage. The pseudocœle spaces in the parenchyma are intercellular.

---

[1] Bull. Mus. Comp. Zool., XXI., No. 1, 1891.

Crustacea and Echinoderms of Japan.—Mr. J. E. Ives has recently studied[2] the collections made by Mr. Frederick Stearns in Japan. The novelties described are: *Pectinura stearnsii*, *Cryptodromia stearnsii*, and *Ascorhyncleus japonicus*.

The Affinities of the Molluscs.—Thiele has done some good word in the anatomy of the Mollusca, and hence his recent paper[3] is a surprise. Thiele not only considers the phylogenetic relationship of the molluscs, but of most of the invertebrates as well. Space is available but for a few samples of his conclusions. The lowest Ctenophores stand lower than all other Cœlenterates and nearest to the primitive metazoan. From them with "kaüm ein Zweifel," the sponges "ohne Schwierigkeit" are to be derived, the apical pores of the Ctenophore giving rise to the pores of the sponge! So, too, from them come the Cnidaria and the bilateral animals. In the group of molluscs, derived from the Plathelminthes, some peculiar "homologies" are recognized. Thus the operculum of many Gasteropods is the homologue of the posterior element of the chiton shell. The Trochophore is homologized, bit by bit, with the Ctenophore, etc., etc. The whole is supported by an idea of "centralization" which, in its application, is carried to the same extreme as was a few years ago the principle of "cephalization" advanced by an American author, and which receives its deathblow in the same group (the Crustacea) in which it was supposed to receive its strongest confirmation.

The Head of Elasmobranchs.—Miss Julia B. Platt continues[4] her studies of the vertebrate head, to which reference has already been made in our pages. She shows that in Acanthias the alimentary canal at first extends forward beyond the neural plate to the anterior extremity of the embryo, and later the anterior portion of the entoderm is separated from the rest by the downward growth of the infundibulum. There is evidence which goes to show that the notochord formerly extended to the anterior end of the entoderm. From the anterior entoderm arise the anterior head-cavities, and a second pair of cavities in front of the mouth are formed by cells proliferated from the dorsal entoderm. These cavities have at early stages a nerve supply in which both motor and sensory roots occur; one nerve, called the "thalamicus," being apparently a new discovery, and is probably to be regarded as the dorsal root of the oculomotorius.

---

[2] Proc. Acad. Nat. Sci. Philadelphia, 1891, p. 210.

[3] *Jenaische Zeitschrift*, XXV., p. 480, 1891.

[4] *Anatom. Anzeiger*, VI., p. 251, 1891.

The Reproduction of the Conger.—Mr. T. J. Cunningham thinks[5] that the conger eel reproduces but once in a lifetime, and then dies. He gives many facts, new and collected, to support this view, although he has never obtained ripe eggs. The female increases in size towards the period of maturity, and this growth, sometimes so excessive as to burst the body open, is the result of the enlargement of the ovaries. During some months before maturity both male and female congers refuse all food, and all reserves stored up in the body are transferred to the reproductive organs. This process goes so far that the teeth are lost, while the bones of the skull lose all osseous characters and cut like cheese. From various facts Cunningham reasons that the eggs of the conger are pelagic and transparent, and he attempts to identify certain unknown eggs from Naples with several Muræenoid fishes.

A New Species of Frog from New Jersey.—It is well known that the coastal plain of New Jersey is both zoologically and botanically very different from the Piedmont regions, and that its species have a greater or less distribution in the corresponding region of the states to the southwest of it. Among fishes, the few species of the Percid genera Acantharchus and Enneacanthus range through the entire coastal region, with the *Etheostoma barrattii.* The *Mesogonistius chætodon* covers so far, only New Jersey and the Chesapeake peninsula, while the *Lepomis phenax* has not yet been found south of New Jersey. Among Batrachia a marked instance of this distribution is furnished by the *Hyla andersonii*, which has been found at two localities in New Jersey and one in South Carolina. I have now to add to this list a species of Rana found in Southern New Jersey, which has hitherto escaped detection. It is a most distinct one, and about the size of the wood frog (*Rana silvatica*).

RANA VIRGATIPES, sp. nov.—Vomerine tooth patches between the choanæ, and extending posteriorly to their posterior border. Hind legs short, the heel extending from the middle of the tympanum in some to near the eye in other specimens. Webs rather short, two phalanges of the fourth toe free. Præhallux small, but quite prominent; no external solar tubercle. Skin of upper surfaces of body and posterior limb covered with minute tubercles; no longitudinal dermal folds. Males with, females without, external vocal vesicles. Interocular width one-half that of each eyelid. Tympanic disk distinct, equaling the eye in longest diameter. Head (to posterior border of tympanic disk) about one-third length of head and body. End of muzzle oval-acuminate, projecting moderately beyond mouth border. Nostril opening vertically equidistant between border of orbit and end of muzzle. First and second fingers subequal and longer than the fourth.

---

[5] Jour. Marine Biol. Assn. United Kingdom, II., p. 16, 1891.

The color of the upper surfaces is an olive-brown, varying to more or less yellowish or blackish. Two light-brown longitudinal bands on each side, one commencing at the orbit and extending above the tympanum to the sacrum or beyond it; the other commencing at the muzzle, involving the upper lip, and extending to the groin. The dark color of the top of the muzzle contrasts strongly with the lighter color of the upper lip, at the canthus rostralis. The inferior band is bounded below from the axilla to the groin by a wide black band, which is made up of several more or less confluent spots. Inferior surface of head and body white; the former dusted with blackish in both sexes, the latter with or without blackish blotches. Fore limbs brown above, black on anterior and posterior faces, and white, with blackish blotches, below. Hind limbs brown on upper surfaces, with two or three black blotches on the femur and tibia. Remainder of hind limb and foot black, with the following exceptions: A light-yellow band commences at the groin and extends along the femur, passing under the knee to and along the external border of the tibia and the anterior face of the foot. It expands here, and extends on the anterior surfaces of the first, second, and third digits. A subtriangular white blotch occupies the middle of the inferior surface of each femur, meets its fellow, and sometimes connects with the white of the belly on the middle line. A narrow, horizontal white line, generally broken into spots, divides the black of the posterior face of the femur. Inner edge of tibia with some white spots.

Length of head and body, 60 mm.; width of head at posterior borders of tympana, 21.5 mm.; length of fore limb from axilla, 28 mm.; length of hind limb from vent, 76 mm.; length of hind foot, 39 mm.; of tarsus, 15 mm.; of tibia, 23 mm.

This frog is not nearly related to any species of the genus. It has some points of resemblance to the *R. temporaria*, as the short posterior legs and moderate web; but the interocular space is much narrower, the vomerine teeth more anteriorly placed, and there are no dermal folds. In coloration there is no resemblance to any other species.

I obtained five adult and two half-grown individuals, and had two other adults almost within my grasp, but they escaped me. The specimens agree nearly in size, the chief differences being observed in the amount of dark blotching of the belly and the regularity of the markings on the inferior side of the femur. The specimens were found in a cut-off of a tributary of the Great Egg Harbor, River in Atlantic county, New Jersey. The water is stagnant, and is well grown with Nymphæas, Utricularia, and Sphagnum. The frogs did not display any considerable powers of leaping or swimming, but concealed themselves with much ease within the aquatic vegetation. I did not observe any voice. In the same locality I observed the *Ranæ virescens* and *clamata*. The cut-off is in the woods, and I found no individuals in similar situations in the open country, nor any along running water in the woods.

The oversight of this conspicuous species is a curious circumstance. —E. D. Cope.

Zoological Notes.—General. —Dr. A. Voeltzkow has been giving[6] a general résumé of fresh-water fauna of Madagascar. The present paper gives promise of many interesting facts when the completed paper appears, both of new forms and of geographical relationships.——Frenzel describes,[7] without naming, an interesting infusore from a salt-water aquarium in Argentina. It is saccular, pointed at either end, and depressed so that it may be called bilateral, the ventral surface being flattened, the back rounded. The lower surface is ciliated, the dorsal with a few short bristles. In front is a mouth, posteriorly an anus, the mouth being surrounded by strong cirri. The wall of this organism is composed of a single layer of cubical cells, bounding the "alimentary canal." Reproduction takes place in two ways: (1) by transverse fission, and (2) by conjugation and subsequent encystment. Two individuals oppose the ventral surfaces, and contract into a sphere which secretes a cyst. The internal processes were not clearly observed; it appears that the alimentary lumen is filled by cell division, so that the whole cyst is filled with similar cells, each of which is to be regarded as a spore which, after liberation, swims about as a ciliate, and by cell division develops directly into the adult. No hints are given as to the relationships of this form.——Mr. F. A. Lucas describes[8]

[6] *Zool. Anzeiger*, XIV., 1891.

[7] *Zool. Anz.*, XIV., p. 230, 1891.

[8] Proc. U. S. Nat. Mus., XIV., p. 169, 1891.

several points in the structure of the humming-bird's tongue. This organ is tubular, but as it lacks any pumping apparatus it can take fluids only by capillary attraction. Lucas thinks it is rather an instrument for the capture of small insects, a view supported by the size of the salivary glands.——*Tetraprion jordani* is the name of a new tree toad from Ecuador described[9] by Dr. L. Stejneger and Mr. F. C. Test. It differs from all other Hylidæ in the presence of palatine teeth.——A recent paper by Barton A. Bean[10] on the fishes of the Chesapeake is interesting from its richness in local names. Thus, the file-fish is locally called fool-fish; the flounder (*Paralichthys dentatus*) is the chicken halibut; the toad-fish, bull-fish; *Stromateus paru*, butter-fish; the weakfish as trout or gray trout; scup is maiden; the sea-bass is black will or black nell; the blue-fish is tailor; the menhaden is old wife, etc.

EMBRYOLOGY.[1]

Embryology of the Sea Bass.—Dr. H. V. Wilson has published in the bulletin of the United States Fish Commission for 1889, Vol. IX., a contribution to the embryolgy of *Serranus atrarius* in particular, and teleostean embryology in general. The paper covers sixty-eight pages of text, and is accompanied by twenty photo-lithographic plates. Dr. Wilson has given a most excellent account of the development of a single fish, from the egg to the time when the young fish hatches. To those desiring a simple and straightforward account of fish development, brought up to date, the present contribution will meet every want. As a contribution of original research the different parts are of different values. For instance, while the sections on gastrulation, concrescence, and the formation of the lateral line are valuable, and largely, more especially the last, original contributions to modern embryology, yet the sections dealing with the central nervous system, blood vessels, notochord, gill-slits, anterior body-cavities, etc., are by no means so fully treated, and little addition is made to our present knowledge. This, perhaps, is a necessity of the attempt to cover so large and so well worked a field; indeed, one of the most prominent facts brought out in the paper is that the grounds seem so

---

[9] Proc. U. S. Nat. Mus., XIV., p. 167, 1891.

[10] Proc. U. S. Nat. Mus., XIV., p. 83, 1891.

[1] Edited by Dr. T. H. Morgan, Johns Hopkins University, Baltimore.